

2004 GALVESTON BAY INVASIVE SPECIES RISK ASSESSMENT
INVASIVE SPECIES SUMMARY

Created by: Environmental Institute of Houston, University of Houston-Clear Lake
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Common Name: <i>Vibrio</i>
Latin Name: <i>Vibrio parahaemolyticus</i> ; serotype 03:K6
Category: Bacteria
Place of Origin: "It was first described as the cause of gastroenteritis in Japan (9) and was first found in the United States by Baross and Liston (1) in the estuarine waters of Puget Sound." http://www.cfsan.fda.gov/~ebam/bam-9.html (Accessed 24 March 2003).
Place of Introduction: Pudget Sound, Washington http://www.cfsan.fda.gov/~ebam/bam-9.html (Accessed 24 March 2003.)
Date of Introduction: First Cases Reported 1971
States Effected: 21 States effected. See Map http://www.cdc.gov/ncidod/dbmd/diseaseinfo/files/VibCSTE99web.pdf (Page 6) (Accessed 24 March 2003).
Life History: "When ingested, <i>V. parahaemolyticus</i> causes watery diarrhea often with abdominal cramping, nausea, vomiting fever and chills. Usually these symptoms occur within 24 hours of ingestion. Illness is usually self-limited and lasts 3 days." http://www.cdc.gov/ncidod/dbmd/diseaseinfo/vibrioparahaemolyticus_g.htm#What%20is%20Vibrio%20paraha (Accessed 24 March 2003).
Growth/Size: "Diarrhea, abdominal cramps, nausea, vomiting, headache, fever, and chills may be associated with infections caused by this organism. The illness is usually mild or moderate, although some cases may require hospitalization. The median duration of the illness is 2.5 days. The incubation period is 4-96 hours after the ingestion of the organism, with a mean of 15 hours. Disease is caused when the organism attaches itself to an individuals' small intestine and excretes an as yet unidentified toxin." http://www.cdc.gov/ncidod/dbmd/diseaseinfo/vibrioparahaemolyticus_g.htm#What%20is%20Vibrio%20paraha (Accessed 24 March 2003).
Habitat: " <i>Vibrio parahaemolyticus</i> is a bacterium in the same family as those that cause cholera. It lives in brackish saltwater and causes gastrointestinal illness in humans. <i>V. parahaemolyticus</i> naturally inhabits coastal waters in the United States and Canada and is present in higher concentrations during summer; it is a halophilic, or salt-requiring organism.... <i>Vibrio</i> is a naturally occurring organism commonly found in waters where oysters are cultivated. When the appropriate conditions occur with regard to salt content and temperature, <i>V. parahaemolyticus</i> thrives." http://www.cdc.gov/ncidod/dbmd/diseaseinfo/vibrioparahaemolyticus_g.htm#What%20is%20Vibrio%20paraha (Accessed 24 March 2003).
Attitude (aggressive, etc.): "In Asia, <i>V. parahaemolyticus</i> is a common cause of foodborne disease. In the United States, it is less commonly recognized as a cause of illness, partly because clinical laboratories rarely use the selective medium that is necessary to identify this organism. Not all states require that <i>V. parahaemolyticus</i> infections be reported to the state health department, but CDC collaborates with the Gulf Coast states of Alabama, Florida, Louisiana, and Texas to monitor the number of cases of <i>Vibrio</i> infection in this region. From those states, about 30-40 cases of <i>V. parahaemolyticus</i> infections are reported each year. The Foodborne Diseases Active Surveillance Network, Food Net, also tracks <i>V. parahaemolyticus</i> in regions outside the Gulf Coast. In 1997, the incidence of diagnosed <i>V. parahaemolyticus</i> infection in Food Net sites was .25/100,000." http://www.cdc.gov/ncidod/dbmd/diseaseinfo/vibrioparahaemolyticus_g.htm#What%20is%20Vibrio%20paraha (Accessed 24 March 2003). "Major outbreaks have occurred in the U.S. during the warmer months of the year. Sporadic cases occur along all coasts of the U.S." http://vm.cfsan.fda.gov/~mow/chap9.html (Accessed 24 March 2003).
Physical Description: " <i>V. parahaemolyticus</i> is a halophilic bacterium found naturally in estuarine waters and animals. It has a worldwide distribution in estuarine and coastal environments and has been isolated from many species of fish, shellfish, and crustaceans. <i>V. parahaemolyticus</i> has been implicated in numerous outbreaks of seafood-borne gastroenteritis in the United States. Between 1971 and 1978, crab, oyster, shrimp, and lobster were implicated in 14 outbreaks, which may have resulted from the consumption of raw or insufficiently heated seafood or properly cooked seafood contaminated after cooking. The FDA method of enumeration uses an MPN format." http://www.cfsan.fda.gov/~ebam/bam-9.html (Accessed 24 March 2003).
Management Recommendations / Control Strategies: include references for existing site-specific strategies

“Most infections caused by *V. parahaemolyticus* in the United States can be prevented by thoroughly cooking seafood, especially oysters. Wound infections can be prevented by avoiding exposure of open wounds to warm seawater. When an outbreak is traced to an oyster bed, health officials recommend closing the oyster bed until conditions are less favorable for *V. parahaemolyticus*.” http://www.cdc.gov/ncidod/dbmd/diseaseinfo/vibrioparahaemolyticus_g.htm#What%20is%20Vibrio%20paraha (Accessed 24 March 2003).

“In response to the 1997 and 1998 outbreaks of *V. parahaemolyticus* infections in the United States, the Food and Drug Administration (FDA) conducted a risk assessment to characterize the public health impact associated with consumption of raw oysters harboring pathogenic *V. parahaemolyticus*. This risk assessment focused specifically on oysters, because this was the food predominantly linked to the outbreaks. The risk assessment structures our knowledge of *V. parahaemolyticus* in a systematic manner, and includes sophisticated, mathematical models developed to estimate exposure to this microorganism and the dose-response relationships between the consumer and *V. parahaemolyticus*.” <http://vm.cfsan.fda.gov/~mow/chap9.html> (Accessed 24 March 2003).

Agencies Collecting Data:

Center for Disease Control

References (includes journals, agency/university reports, and internet links):

1. CDC - http://www.cdc.gov/ncidod/dbmd/diseaseinfo/vibrioparahaemolyticus_g.htm#What%20is%20Vibrio%20paraha
2. CFSAN - <http://vm.cfsan.fda.gov/~mow/chap9.html>
3. CFSAN - <http://www.cfsan.fda.gov/~ebam/bam-9.html>

Available Mapping Information:

CDC - <http://www.cdc.gov/ncidod/dbmd/diseaseinfo/files/VibCSTE99web.pdf>